5. The self-contained electronic pressure monitoring and shutdown device of claim 4 wherein the electronic logic circuit has the means to be configured in such a way that it will delay the alarm and shutdown on the high and/or low pressure alarms for a preprogrammed number of seconds to prevent shutting down the process if the alarm is only temporary.

ABSTRACT

The invention is a self-contained process shutdown device that detects abnormal pressures and initiates shutdown by removing the pneumatic or hydraulic pressure needed for a given process or flow to continue. The process' pressure is detected by means of a switch-gauge (a pressure gauge with high and low alarm electrical contacts) which has a pressure sensing port connected to the monitored pressure. The contacts from the switch-gauge are connected to an electronic logic circuit that sends one or more shutdown pulses to trip a pulse driven solenoid and initiate the shutdown. This device provides indicator lamps to show statuses and alarms as well as switch or pushbuttons to activate the "Reset" and "Test" functions.

The electrical power is supplied by a power module that is constituted of battery cells connected in such way that it provides a dual voltage output to feed the electronic logic separate from the pulse driven solenoid driver circuit. Alternatively, the power module may be constituted of a circuit made of a photovoltaic module, voltage regulator circuits and three main capacitors with enough capacitance to keep the electronic logic circuit and the solenoid valve driver circuit operating throughout the night or longer.